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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

LE, HUYEN D

ART UNIT	PAPER NUMBER
2643	6

DATE MAILED: 03/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/892,640

Applicant(s)

MELLOW, TIMOTHY

Examiner

HUYEN D. LE

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other:

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DETAILED ACTION

Election/Restrictions

Responding to the response of the restriction requirements filed 12/17/03, claims 1-28 have been examined.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-2, 6-7, 9, 11-12 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Petiet (U.S. patent 6,023,123).

Regarding claims 1-2 and 11, Petiet teaches a speaker that comprises first and second diaphragms (1, 2, figure 2A) to be driven as claimed (col. 1, lines 62-65).

Regarding claim 6, Petiet shows first and second diaphragms that are mounted on either side of an insulating support (3).

Regarding claims 7 and 12, Petiet shows a cavity as claimed (figure 2A).

Regarding claims 9 and 14, Petiet teaches the cavity (18) that is filled with a gas as claimed (col. 3, lines 41-49).

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3. Claims 1-3, 6-7 and 11-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Sullivan (U.S. patent 5,185,549).

Regarding claims 1-2 and 11, Sullivan teaches a speaker that comprises first and second diaphragms (12) to be driven as claimed (col. 3, lines 5-9).

Regarding claim 3, Sullivan teaches the piezoelectric film (12) that has a conductive coating (4, 5) on each side (col. 2, lines 65-67).

Regarding claim 6, Sullivan shows first and second diaphragms that are mounted on either side of an insulating support (11, 20).

Regarding claims 7 and 12, Sullivan shows a cavity as claimed (figures 1, 2).

4. Claims 20-25 and 27-28 are rejected under 35 U.S.C. 102(b) as being anticipated by Kumada et al. (U.S. patent 4,352,961).

Regarding claims 20-22 and 24, Kumada teaches an electronic device that includes a display (10) and a transparent speaker (11, 12, 13, see the piezoelectric transparent speaker unit 1) as claimed (figures 1 and 6).

Regarding claim 23, Kumada shows the piezoelectric film speaker that has a dual diaphragm (11, 12, figure 1).

Regarding claims 25 and 27, Kumada teaches the piezo-electric film (11, 12) that has a conductive coating (20, 21, 22, col. 3, lines 6-11) on each side.

Regarding claim 28, Kumada teaches an electronic device as claimed (figures 6 and 7).

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5. Claims 20-24 and 28 are rejected under 35 U.S.C. 102(e) as being anticipated by Toki (U.S. patent 6,427,017).

Regarding claims 20-22 and 24, Toki teaches an electronic device that includes a display (2, 10, 25, 27) and a transparent speaker (the piezoelectric transparent speaker unit 26) as claimed (figures 2-5).

Regarding claim 23, Toki shows the piezoelectric film speaker that has a dual diaphragm (figure 4).

Regarding claim 28, Toki shows an electronic device as claimed (figure 1).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Petiet (U.S. patent 6,023,123) or Sullivan (U.S. 5,185,549).

Regarding claims 4-5, Petiet or Sullivan does not specifically teach that the piezoelectric film comprises PVDF and the coating as claimed.

However, the examiner takes the Office Notice that providing the piezoelectric film in a loudspeaker comprising the PVDF material and the ITO coating is very well-known in the art.

Therefore, it would have been obvious to one skilled in the art to provide any type of the material for the piezoelectric loudspeaker such as a PVDF material and the ITO coating for the piezoelectric speaker of Petiet or Sullivan for an alternate choice.

8. Claim 8, 10, 13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Petiet (U.S. patent 6,023,123).

Regarding claims 8 and 13, Petiet does not specifically teach that the first and second diaphragms (11, 12) are driven as claimed. However, Petiet does not restrict to any volume or the pressure in the cavity (col. 3, lines 42-49) for the vibrations of the diaphragms (1, 2).

Therefore, it would have been obvious to one skilled in the art to provide any volume of the cavity (18) of Petiet such as providing a volume of the cavity (18) that remains substantially constant for better controlling the vibrations of the diaphragms (1, 2) and better producing an anti-sound signal to the system.

Regarding claims 10 and 15, Petiet does not specifically teach the gas as claimed. However, Petiet does not restrict to any type of gas in the cavity (18, col. 3, lines 43-46).

Therefore, it would have been obvious to one skilled in the art to provide any type of gas such as sulphur tetrafluoride for better controlling the pressure in the cavity (18) and the vibrations of the diaphragms (1,2).

9. Claims 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Toka (U.S. patent 6,427,017) or Kumada et al. (U.S. patent 4,352,961) in view of Petiet (U.S. patent 6,023,123).

Regarding claims 16-19, Toka or Kumada teaches an electronic device that includes a display and a transparent speaker as claimed as mentioned above in paragraph 4-5.

Toka or Kumada lacks the teaching of first and second diaphragms that are driven in opposite phase or move in the same direction as claimed in claim 1.

Petiet teaches the piezoelectric speaker that comprises first and second diaphragms (1, 2) as claimed (figure 2, col. 1, lines 62-65).

Since Toka, Kumada and Petiet do teach a piezoelectric transparent speaker unit that comprises a plurality of diaphragms; it therefore would have been obvious to one skilled in the art to provide the piezoelectric transparent speaker unit that comprises first and second diaphragms, as taught by Petiet, in the electronic device of Toka for better controlling and dampening the vibrations of the diaphragms (col. 1, lines 10-17 and col 4, lines 13-21).

10. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kumada et al. (U.S. patent 4,352,961).

Kumada does not specifically teach that the piezoelectric film (11, 12, 13) comprises PVDF as claimed.

However, the examiner takes the Office Notice that providing the PVDF material for the piezoelectric film in a loudspeaker is very well-known in the art.

Therefore, it would have been obvious to one skilled in the art to provide any type of the material for the piezoelectric film (11, 12, 13) of Kumada such as the PVDF material for an alternate choice.

11. Claims 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Toki (U.S. patent 6,427,017).

Regarding claims 25 and 27, Toki teaches a conductive coating on one side of the piezoelectric film (5, col. 3, lines 46-49). Toki does not specifically teach a conductive coating on each side of the piezoelectric film (5). However, the examiner takes the Office Notice that providing the conductive coating on each side of the piezoelectric film is very well known in the art.

Therefore, it would have been obvious to one skilled in the art to provide the conductive coating on both sides of the piezoelectric film (5) of Toki for providing better bending modes to the speaker.

Regarding claim 26, Toki does not specifically teach that the piezoelectric film (5, 22, 23) comprises PVDF as claimed.

However, the examiner takes the Office Notice that providing the PVDF material for the piezoelectric film in a loudspeaker is very well known in the art.

Therefore, it would have been obvious to one skilled in the art to provide any type of the material for the piezoelectric film (5, 22, 23) of Toki such as the PVDF material for an alternate choice.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to HUYEN D. LE whose telephone number is (703) 305-4844. The examiner can normally be reached on 9:30AM-6:00PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, CURTIS KUNTZ can be reached on (703) 305-4708. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-5631.



HL
March 7, 2004



HUYEN LE
PRIMARY EXAMINER